LISTING OF CLAIMS

1. (Currently Amended) A computer implemented method of assigning objects to processing units of a cluster of processing units, each one of the objects having an object size and an object load, each one of the processing units having a storage capacity and a load capacity, the method comprising ~~the steps of~~:

a) calculating an index based on object size and object load for each one of the objects,

b) sorting ~~o~~f the objects by index to provide a sequence of objects;

c) for each processing unit of the cluster:

assigning ~~of~~ one or more of the objects to the processing unit in sequential order until a remaining storage capacity and a remaining load capacity of the processing unit is too small for ~~consecutive~~ any of the remaining objects of the sequence; and

~~deleting of~~ removing the assigned objects ~~that are assigned to the processing unit~~ from the sequence; ~~and~~

d) determining a load and capacity balance between the processing units of the cluster, the determining comprising:

determining a first threshold and a second threshold of each of the processing units based on a number of the processing units;

calculating a new remaining storage capacity as a difference between the first threshold and an aggregated size of objects assigned to the processing unit;

calculating a new remaining load capacity as a difference between the second threshold and an aggregated load of objects assigned to the processing unit; and

e) performing step 1 c) again with the new remaining storage capacity and the new remaining load capacity.

2. (Currently Amended) The computer implemented method of claim 1, wherein step 1 c) is carried out repeatedly until the sequence is empty ~~in order to provide a minimum number of the processing units~~.

3. (Currently Amended) The computer implemented method of claim 1, wherein the

remaining storage capacity is determined by the difference between the storage capacity of the processing unit and the aggregated size of objects being assigned to the processing unit.

4. (Currently Amended) The computer implemented method of claim 1 wherein the remaining load capacity is determined by the difference between the load capacity of the processing unit and the aggregated loads of objects being assigned to the processing unit.

5. (Currently Amended) The computer implemented method of claim ~~3~~ 1, wherein determining a first threshold and a second threshold of each of the processing units ~~further~~ comprises ~~comprising the steps of~~:

d) determining a first largest gap between the aggregated size of objects being assigned to one of the processing units and the storage capacity of the processing unit,

e) determining a second largest gap between the aggregated load of objects being assigned to one of the processing units and the load capacity of the processing unit,

f) subtracting the first largest gap divided by the number of processing units from the storage capacity to provide ~~a~~ the first threshold, and

g) subtracting the second largest gap divided by the number of processing units from the load capacity to provide ~~a~~ the second threshold.

~~h) performing step 1 c) again, wherein the remaining storage capacity is the difference between the aggregated size of the objects being assigned to the processing unit and the first threshold, and the remaining load capacity is the difference between the aggregated load of the objects being assigned to the processing unit and the second threshold.~~

6. (Currently Amended) The computer implemented method of claim 1, further comprises ~~the steps of~~:

d) determining ~~the~~ a total of the sizes of the objects,

e) determining ~~the~~ a total of the loads of the objects,

f) determining a first difference between the total of the storage capacities of the ~~minimum number of~~ processing units and the total of the sizes of the objects,

g) determining a second difference between the total of the load capacities of the ~~minimum number of~~ processing units and the total of the load of the objects,

h) subtracting the first difference divided by the ~~minimum~~ number of processing units from the storage capacity to provide a first threshold,

i) subtracting the second difference divided by the ~~minimum~~ number of processing units from the load capacity to provide a second threshold,

j) performing step 1 c) again, wherein the remaining storage capacity is determined by the difference between the aggregated size of the objects being assigned to the processing unit and the first threshold, and the remaining load capacity is determined by the difference between the aggregated load of the objects being assigned to the processing unit and the second threshold,

k) if as a result of step 6 j) there is an excess amount of memory requirement for one of the processing units that surpasses the first threshold, dividing the excess amount by the ~~minimum~~ number of processing units and increasing the first threshold by the result of the division, and

l) if as result of step 6 j) there is an excess load requirement for one of the processing units that surpasses the second threshold, dividing the excess load by the ~~minimum~~ number of processing units and increasing the second threshold by the result of the division,
wherein steps 6 j), 6 k) and 6 l) are performed repeatedly until there is no such excess amount of memory requirement and no such excess load requirement.

7. (Currently Amended) The computer implemented method of claim 1, further comprising ~~the steps of~~:

d) stepwise varying the first and second thresholds between respective first and second limits,

e) performing step 1 c) for each first and second threshold value, wherein the remaining storage capacity is the difference between the aggregated size of the objects being assigned to the processing unit and the first threshold, the remaining load capacity is the difference between the aggregated load of the objects being assigned to the processing unit and the second threshold, and a statistical measure is calculated for the assignment of objects to the processing unit, and

f) selecting one of the assignments of objects to processing units based on the statistical measure.

8. (Currently Amended) The computer implemented method of claim 7, wherein:
the first limit of the first threshold is given by the aggregated size of the objects divided by the ~~minimum~~ number of processing units,

the second limit of the first threshold is given by the storage capacity,
the first limit of the second threshold is given by the aggregated load of the objects divided by the ~~minimum~~ number of processing units, and the second limit of the second threshold is given by the load capacity.

9. (Currently Amended) The computer implemented method of claim 7, wherein the statistical measure is calculated by calculation of a standard deviation or a variance of the totals of the indices of objects assigned to one processing unit.

10. (Cancelled)

11. (Cancelled)

12. (Currently Amended) The computer implemented method of claim 1, wherein the index of an object is calculated based on the sum of the ~~normalised~~ normalized object size and object load and based on the absolute value of a difference between the ~~normalised~~ normalized object size and the normalised object load.

13. (Currently Amended) An article of manufacture, comprising:

a machine readable medium having instructions for assigning objects to processing units of a cluster of processing units, each one of the objects having an object size and an object load, each one of the processing units having a storage capacity and a load capacity which when executed by a machine cause the machine to perform operations comprising: ~~A computer program product for assigning objects to processing units of a cluster of processing units, each~~

~~one of the objects having an object size and an object load, each one of the processing units having a storage capacity and a load capacity, the computer program product comprising instructions for:~~

a) calculating an index based on object size and object load for each one of the objects,

b) sorting of the objects by index to provide a sequence of objects;

c) for each processing unit of the cluster:

assigning of one or more of the objects to the processing unit in sequential order until a remaining storage capacity and a remaining load capacity of the processing unit is too small for ~~consecutive~~ any of the remaining objects of the sequence;

~~deleting of~~ removing the ~~objects that are~~ assigned objects ~~to the processing unit~~ from the sequence; ~~and~~

d) determining a load and capacity balance between the processing units of the cluster, the determining comprising:

determining a first threshold and a second threshold of each of the processing units based on a number of the processing units;

calculating a new remaining storage capacity as a difference between the first threshold and the aggregated size of objects assigned to the processing unit;

calculating a new remaining load capacity as a difference between the second threshold and the aggregated load of objects assigned to the processing unit; and

e) performing step 13 c) again with the new remaining storage capacity and the new remaining load capacity.

14. (Currently Amended) The ~~computer program product~~ article of manufacture of claim 13 further comprising instructions to repeatedly carry out step 13 c) until the sequence is empty ~~and to output a minimum number of the processing units that are required for the objects~~.

15. (Currently Amended) The ~~computer program product~~ article of manufacture of claim 13, further comprising instructions to perform ~~the steps of~~:

d) determining a first largest gap between the aggregated size of objects being assigned to one of the processing units and the storage capacity of the processing unit,

e) determining a second largest gap between the aggregated load of objects being assigned to one of the processing units and the load capacity of the processing unit,

f) subtracting the first largest gap divided by the number of processing units from the storage capacity to provide ~~a~~ the first threshold, and

g) subtracting the second largest gap divided by the number of processing units from the load capacity to provide ~~a~~ the second threshold.

~~h) performing step 13 c) again, wherein the remaining storage capacity is the difference between the aggregated size of the objects being assigned to the processing unit and the first threshold, and the remaining load capacity is the difference between the aggregated load of the objects being assigned to the processing unit and the second threshold.~~

16. (Currently Amended) The ~~computer program product~~ article of manufacture of claim 13, further comprising instructions to perform the steps of:

d) determining ~~the~~ a total of the sizes of the objects,

e) determining ~~the~~ a total of the loads of the objects,

f) determining a first difference between the total of the storage capacities of the ~~minimum number of~~ processing units and the total of the sizes of the objects,

g) determining a second difference between the total of the load capacities of the ~~minimum number of~~ processing units and the total of the load of the objects,

h) subtracting the first difference divided by the ~~minimum~~ number of processing units from the storage capacity to provide a first threshold,

i) subtracting the second difference divided by the ~~minimum~~ number of processing units from the load capacity to provide a second threshold,

j) performing step 13 c) again, wherein the remaining storage capacity is determined by the difference between the aggregated size of the objects being assigned to the processing unit and the first threshold, and the remaining load capacity is determined by the difference between the aggregated load of the objects being assigned to the processing unit and the second threshold,

k) in case that as a result of step 16 j) there is an excess amount of memory requirement for one of the processing units that surpasses the first threshold, dividing the excess amount by

the minimum number of processing units and increasing the first threshold by the result of the division, and

l) in case that as a result of step 16 j) there is an excess load requirement for one of the processing units that surpasses the second threshold, dividing the excess load by the minimum number of processing units and increasing the second threshold by the result of the division,

wherein steps 16 j), 16 k) and 16 l) are performed repeatedly until there is no such excess amount of memory requirement and no such excess load requirement.

17. (Currently Amended) The ~~computer program product~~ article of manufacture of claim 13, further comprising instructions to perform the steps of:

d) stepwise varying the first and second thresholds between respective first and second limits,

e) performing step 13 c) for each first and second threshold value, wherein the remaining storage capacity is the difference between the aggregated size of the objects being assigned to the processing unit and the first threshold, the remaining load capacity is the difference between the aggregated load of the objects being assigned to the processing unit and the second threshold, and a statistical measure is calculated for the assignment of objects to the processing unit, and

f) selecting one of the assignments of objects to processing units based on the statistical measure.

18. (Currently Amended) The ~~computer program product~~ article of manufacture of claim 13, further comprising instructions to calculate the index of an object on the basis of the sum of the ~~normalised~~ normalized object size and ~~normalised~~ normalized object load and on the basis of the absolute value of the difference of ~~normalised~~ normalized object size and ~~normalised~~ normalized object load.

19. (Currently Amended) A data processing system for determining a minimum number of processing units of a cluster of processing units for a given number of objects having various object sizes and object loads, the data processing system comprising:

a) means for calculating an index based on object size and object load for each one of the objects,

b) means for assigning of one or more of the objects to a processing unit in sequential order until a remaining storage capacity and/or a remaining load capacity of the processing unit is too small for ~~consecutive~~ any of the remaining objects of the sequence and for ~~deleting of~~ removing the objects that are assigned to the processing unit from the sequence, ~~and~~

c) means for outputting of the minimum number of the processing units, and

d) means for improving a balance between the processing units by

means for determining a first threshold and a second threshold of each of the processing units based on a number of the processing units;

means for calculating a new remaining storage capacity as a difference between the first threshold and the aggregated size of objects assigned to the processing unit;

means for calculating a new remaining load capacity as a difference between the second threshold and the aggregated load of objects assigned to the processing unit; and

means for performing step 19 b) again with the new remaining storage capacity and the new remaining load capacity.

20. (Cancelled)

21. (Currently Amended) A blade server ~~having~~ comprising ~~balancing means~~ executable instructions, which when executed cause a processor associated with the blade server to execute a method for dynamically assigning objects to a plurality of blade servers, each one of the objects having an assigned index that is based on object size and object load, ~~the balancing means being adapted to assign objects to the blade servers by the steps of,~~ the method comprising:

a) sorting of the objects by index to provide a sequence of objects;

b) for each processing unit of the cluster:

assigning ~~of~~ one or more of the objects to the processing unit in sequential order until a remaining storage capacity and/or a remaining load capacity of the processing unit is too small for ~~consecutive~~ any of the remaining objects of the sequence;

c) ~~deleting of~~ removing the ~~objects that are~~ assigned objects ~~to the processing unit~~ from the sequence.

d) determining a load and capacity balance between the processing units of the cluster, the determining comprising:

determining a first threshold and a second threshold of each of the processing units based on a number of the processing units;

calculating a new remaining storage capacity as a difference between the first threshold and the aggregated size of objects assigned to the processing unit;

calculating a new remaining load capacity as a difference between the second threshold and the aggregated load of objects assigned to the processing unit; and

e) performing step 21 b) again with the new remaining storage capacity and the new remaining load capacity.

22. (Currently amended) The ~~method of claim 4~~ blade server of claim 21, ~~further~~ comprising the balancing instructions to perform: ~~the steps of~~

d) determining a first largest gap between the aggregated size of objects being assigned to one of the processing units and the storage capacity of the processing unit,

e) determining a second largest gap between the aggregated load of objects being assigned to one of the processing units and the load capacity of the processing unit,

f) subtracting the first largest gap divided by the number of processing units from the storage capacity to provide ~~a~~ the first threshold, and

g) subtracting the second largest gap divided by the number of processing units from the load capacity to provide ~~a~~ the second threshold.

~~h) performing step 1 c) again, wherein the remaining storage capacity is the difference between the aggregated size of the objects being assigned to the processing unit and the first threshold, and the remaining load capacity is the difference between the aggregated load of the objects being assigned to the processing unit and the second threshold.~~

23. (Cancelled)